

**COMPARATIVE STUDY BETWEEN CONVENTIONAL CLINICAL EXAMINATION (CCE) V/S OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE) AS AN EVALUATION TOOL FOR MBBS STUDENTS**B. V. Sreedevi<sup>1</sup>**HOW TO CITE THIS ARTICLE:**

B. V. Sreedevi. "Comparative Study between Conventional Clinical Examination (CCE) v/s objective Structured Clinical Examination (OSCE) as an Evaluation Tool for MBBS Students". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 39, May 14; Page: 6797-6803, DOI: 10.14260/jemds/2015/986

**ABSTRACT: BACKGROUND:** In India, there has been a considerable rethink on the curriculum of medical education, specially, on the teaching and assessment methodology. Subjective assessment is slowly giving way to objective structured assessment. The aim of undergoing clinical examination is to assess the students learning skill, knowledge, professionalism and attitude avoiding examiners variability and bias. OSCE has been advocated as it overcomes the flaws of conventional clinical examination. **OBJECTIVE:** To find out effective, Evaluation tool where the assessment is Structured, Competency based, In-depth testing of skills is done, And higher levels of Millers Pyramid is tested. **Method:** A comparative study was conducted in Tagore Medical College and Hospital among the 9<sup>th</sup> Semester students. Scores obtained under both the methods were compared using statistical methods. After undergoing both the examination, feedback was collected to assess the attitude of the students towards both the methods. **RESULTS:** By quantitative analysis, the two-tailed P value is 0.000 which is considered to be extremely statistically significant. So, the null hypothesis was rejected. So, there is strong reason to believe that students are able to score better under a better examination methodology. By qualitative analysis, attitude of the students towards OSCE method was better than CCE method. **CONCLUSION:** It is proved that Objective structured clinical examination a statistically significant better evaluation tool with comparison to conventional examination and it can be included in the undergraduate assessment method.

**KEYWORDS:** Conventional Clinical Examination, Objective Structured Clinical Examination, Competency, Assessment and Evaluation.

**INTRODUCTION:** "Learning is driven by assessment" To bring about good learning, assessment should be educative and formative. Medical Education aims at the production of competent doctors with sound clinical skills. Competency encompasses 6 inter related domains as developed by Accreditation Council for Graduate Medical Education (ACGME): Knowledge, Patient care, Professionalism, Communication and interpersonal skills, Practice based learning, improvement and system based practice.<sup>(1)</sup>

The community needs to be protected from incompetent physicians and hence assessment of physicians should test all the competencies. Conventional clinical examination possesses certain limitations in terms of its validity and reliability. It has inbuilt variability due to student, patient and examiner. Assessment is usually subjective and not competency based. The end result is tested rather than the process of arriving at that conclusion.<sup>(2)</sup> In CCE, there is no in depth testing of practical skills, communication with the patient and attitudes. It also does not provide systemic feedback. Hence, there is changing trend towards objective examination such as OSCE.

## ORIGINAL ARTICLE

**METHODS:** A comparative study was conducted in department of surgery in Tagore Medical College and Hospital between conventional clinical examination and OSCE involving the students of 9<sup>th</sup> semester MBBS. The study was carried out for 3 days after the completion of Clinical Teaching tenure for the students. First 60 students of the final year MBBS, Ninth semester batch were included. Those students who were not physical well during that time and could not attend the examination were excluded from the study.

Ethical permission was obtained from the institutional ethics committee. 60 students were divided in to 3 batches and were asked to appear in OSCE as well as CCE practical and viva examination with the same syllabus. The evaluation was conducted on three days. The maximum possible score in both evaluation was 50. The OSCE comprised of 12 stations with two rest stations and was designed to evaluate History taking clinical examination, knowledge, Professionalism, Communication and diagnostic skill of the student.

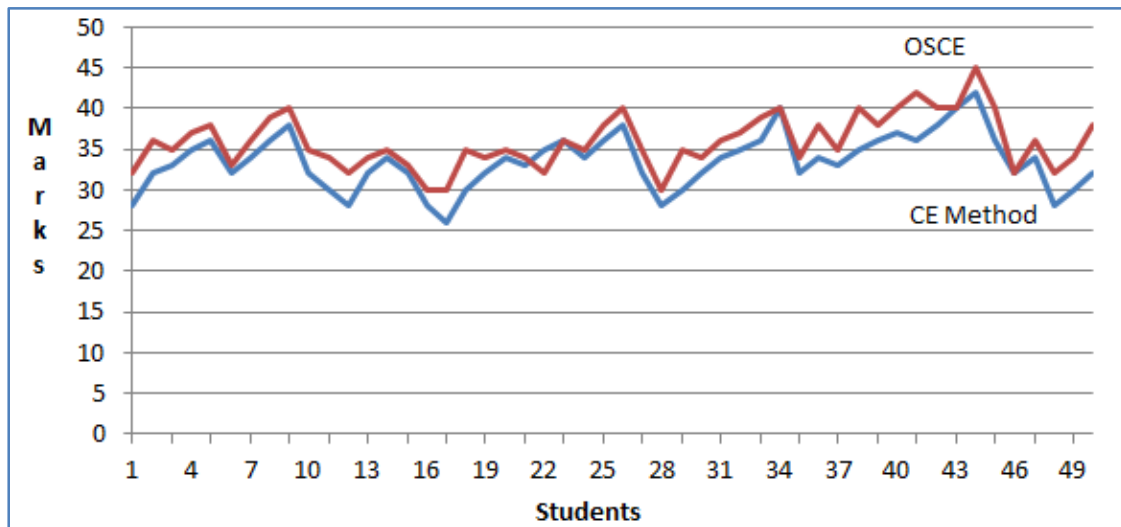
Questions, model keys for OSCE were prepared in consultation with other senior faculty of the department. Standard marking plans with model answers were also prepared. 5 minutes was given for each station. The CCE comprised of traditional short case examination followed by viva. 15 minutes was given for short case examination. 6 faculty members participated in both the type of examination. A questionnaire was designed to assess student's perception regarding both examination style. Negative and positive perception scores were calculated based on the answers given. Quantitative analysis was done with the scores obtained by the students in both the exams. Qualitative analysis was done with the responses obtained from the questionnaire.

**RESULTS:** 50 students appeared for both OSCE and CCE examination on all three days. Quantitative analysis of the scores of the two types of examination are compared by the paired T test and given in the table 1. Mean of OSCE method was more than mean of CCE method. Similarly, the minimum obtained under OSCE method is higher than the minimum obtained under CCE method and maximum obtained under OSCE was higher than that of CCE.

	<b>CE</b>	<b>OSCE</b>	<b>T Test</b>	<b>P Value</b>	<b>Correlation</b>
Mean	33.52	35.96	10.269	0.000	0.875
Minimum	26	30			
Maximum	42	45			
Standard Deviation	3.418	3.282			
Standard Error mean	0.483	0.464			
No. of observations: 50					

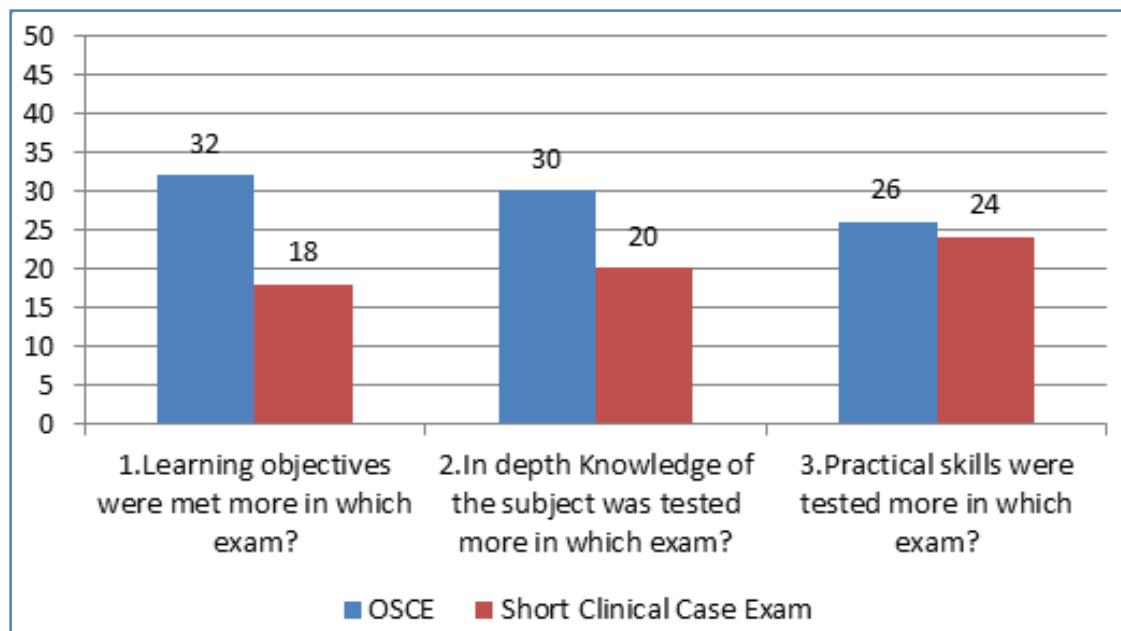
The two-tailed P value is 0.000 which is less than 0.05. By conventional criteria, this difference is considered to be extremely statistically significant. So, the null hypothesis was rejected. So, there is strong reason to believe that students are able to score better under a better examination methodology.

## ORIGINAL ARTICLE



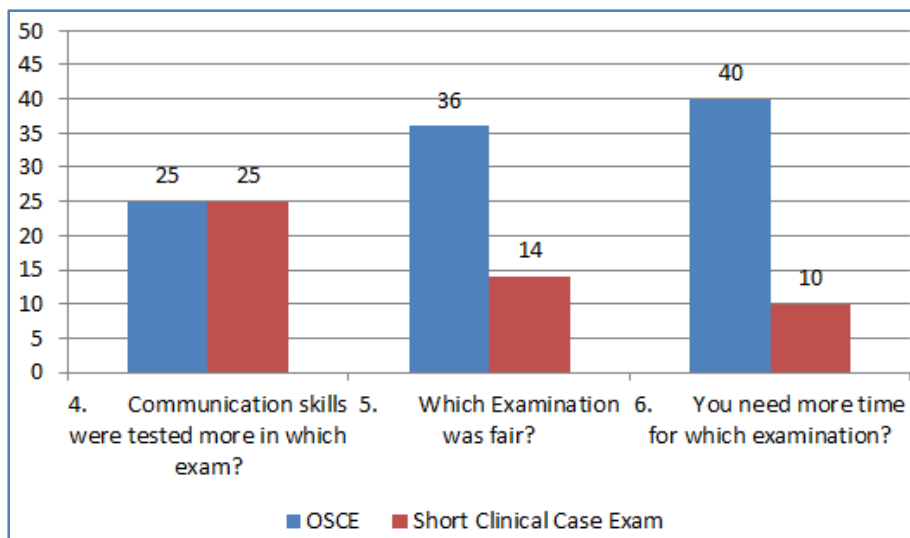
Scores obtained under OSCE were higher than the scores obtained under CE method. 90% of the students scored higher under OSCE method and only 2% of the students scored lower. 8% of the students scored the same score. This clearly shows that students were more comfortable under OSCE method. This is also supported by high level of correlation between both the scores which is 0.875.

**Qualitative Analysis of Questionnaire:** 64% of the students opined that learning objectives were met more under OSCE method. 60% opined that in depth knowledge was tested more in OSCE. However, only 52% students felt that practical skills were tested under OSCE.

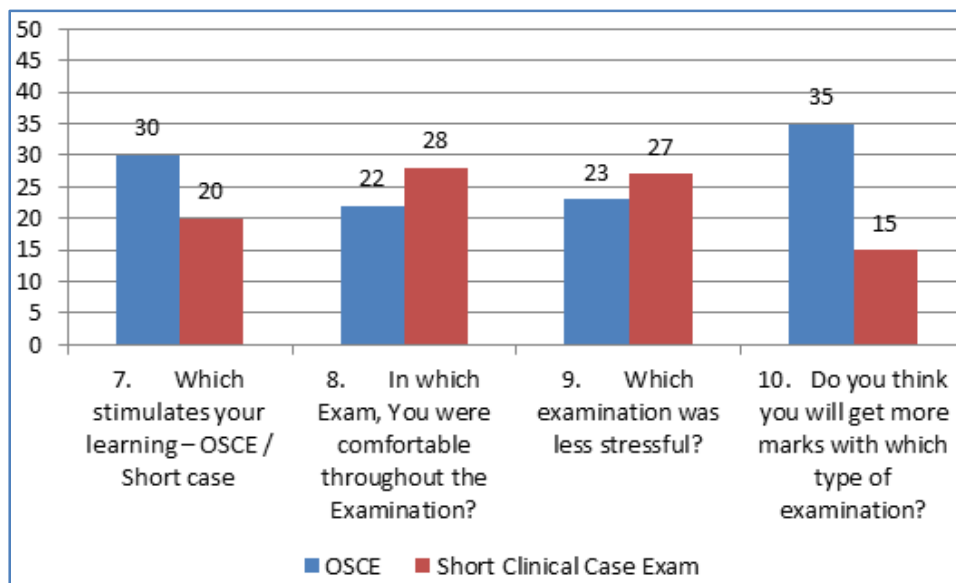


Regarding communication skill, exactly 50% felt that both the methods tested the skill. 72% of the students felt that OSCE was fair. However, 80% students felt that OSCE need more time.

## ORIGINAL ARTICLE



60% students felt that OSCE stimulates learning experience. However, only 44% felt that they were comfortable with OSCE method. To reinforce the ease of the students under short clinical case exam, 54% of the students felt that CCE was less stressful. With all the stress in taking the OSCE method, 70% felt that they will score more under OSCE. The actual score substantiate this feedback given by the students.



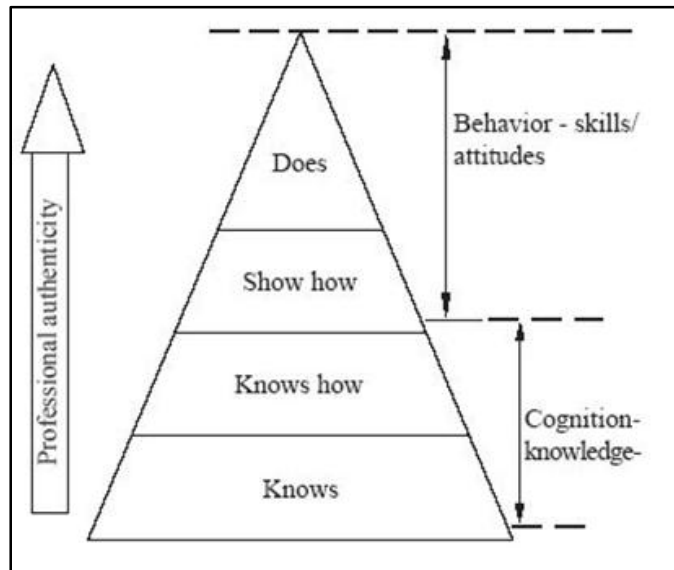
**DISCUSSION:** Objective structured clinical examination was first introduced by HARDEN in 1975, as a standardised tool for objectively assessing clinical competencies, including history taking, physical examination, communication skills, data interpretation. OSCE has been used as a tool for both formative and summative assessment of medical graduate and post graduate students across the globe.

OSCE is defined as objective structured clinical examination which ensures evaluation of set of predetermined clinical competencies. Each clinical competency is broken down in to smaller

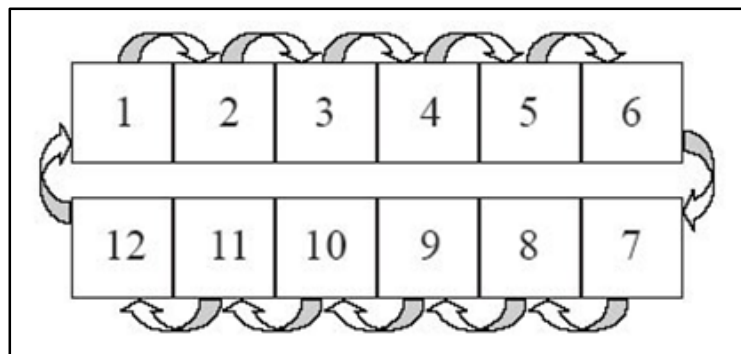
## ORIGINAL ARTICLE

components and each component is assessed in turn and marks are allotted according to predetermined check lists.<sup>(2)</sup>

Need for the newer examination tool: The traditional tools for assessment of medical students have mainly consisted of written exams, besides viva and clinical case presentation. These have focussed on the knows, know how which tests only knowledge or cognitive aspect. Hence to focus on the show how and does aspect of Millers Pyramid which tests skills and attitude of the student OSCE was developed.



### Methodology of OSCE:



OSCE consists of a circuit of stations which are usually connected in series. Each station is devoted to evaluation of one particular competency the student is asked to perform a particular task at each station. These stations assess practical, communication, technical and data interpretation skills and there is a predetermined decision on the competencies to be tested. Students rotate around the complete circuit of stations and keep on performing the tasks at each of the stations.

All students move from one station to another in the same sequence. The performance of a student is evaluated independently on each station using a standardised check list.

## ORIGINAL ARTICLE

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Thus all students are presented with the same test and are assessed by the same or equivalent examiners. Students are marked objectively on the check list,<sup>(2)</sup> by the examiner.

**Types of OSCE Stations:** The stations are divided in to procedure stations and question stations. Procedure stations are observed by the examiner while question stations are unobserved. Student's performance on a procedure station is observed and marked there and then only. While the question stations are evaluated later. It is also advisable to incorporate a rest station for every 30-40 minutes in to the exam, to give a break to the students, observers and patients.

**OSCE Set Up:** The number of stations can vary from 12 to 30 though usually 20 stations suffice.<sup>(1)</sup> The usual time allotted is 5 minutes for each station giving more time per station allows more competencies to be tested in relation to the given task. All students should commence the examination from a procedure station. The entire exam is usually completed within 60 -150 minutes.

The materials which are needed for the conduct of OSCE are venue, furniture, timing device, stationery, manpower and catering.

Factors,<sup>(3)</sup> affecting the usefulness of OSCE are number of stations, checklist, type of stations, blue printing, competencies assessed, non-standardized patients and untrained examiners.

**Integrated OSCE:** The OSCE model suggested by Harden revolves around the basic principles of one competency–One task–One station. Skills were assessed in an isolated manner within a short time span. This does not happen in a real life scenarios. The modern education theory also stipulate the integration of tasks facilitates learning.<sup>(4)</sup> It is thus imperative, that the OSCE should be integrated, incorporating different subjects to impart skills to the students.

The advantages of OSCE are the variability and complexity of the examination is more easily controlled.<sup>(5)</sup> It has wider sampling than traditional methods, every candidate does the same exam, OSCE stations are reusable, there structured interaction between examiner and the student, structured marking schedule, and each student should perform the same task.

The disadvantages of OSCE are costly, time consuming to construct and administer, it needs space, and training needed to achieve reliability and experience to administer.

**CONCLUSION:** Objective structured clinical examination a statistically significant better evaluation tool with comparison to conventional examination. Similarly, the overall feedback towards OSCE by the students was favourable. So, OSCE can be implemented as a reliable evaluation tool.

### ACKNOWLEDGEMENT:

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